

BMW Multi Tool User Manual



X-Horse Electronics Co., Ltd.

<http://www.obdchina.com/>

Table of Contents

1.	Safety Precautions and Warnings	3
2.	General Information.....	4
3.	Hardware Overview	5
3.1.	Tool Description	5
3.2.	Specifications.....	6
3.3.	System Requirements	7
4.	Software Overview	8
4.1.	Overview	8
4.2.	Function	11
5.	Troubleshooting	30
5.1.	“Device not connected”Error	30
6.	Warranty and Service	31
6.1.	Limited One Year Warranty	31
6.2.	Service Procedures	31

1. Safety Precautions and Warnings

To prevent personal injury or damage to vehicles and/or the tool, read this instruction manual first and observe the following safety precautions at a minimum whenever working on a vehicle:

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area: Exhaust gases are poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline/chemical/electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the tool dry, clean, free from oil/water or grease. Use a mild detergent on a clean cloth to clean the outside of the scan tool, when necessary.

2. General Information

Thank you for choosing BMW Multi Tool.

This manual includes the use of equipment notes, please read this manual carefully before use so that you can correctly use it.

X-Horse Electronics, 2011

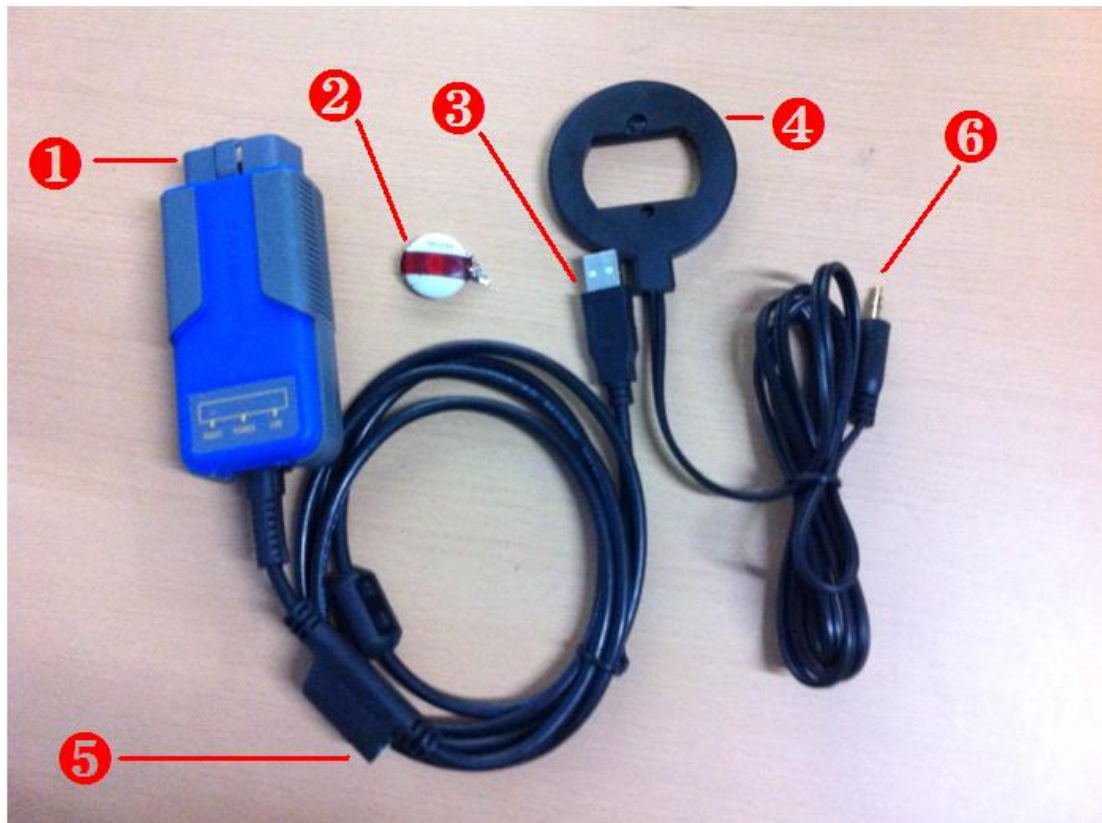
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of X-Horse Electronics.

All copyright and trademarks acknowledged.

No patent liability is assumed with respect to the use of the information contained herein. Moreover, because X-Horse Electronics is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, X-Horse Electronics assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication.

3. Hardware Overview

3.1.Tool Description



ITEM	Description
①	OBD II CONNECTOR Connects the tool to the vehicle's Data Link connector (DLC).
②	Dongle USB dongle.
③	USB CONNECTOR Connects the tool to the PC/Laptop through USB Cable.
④	Programmer Program keys.
⑤	Programmer Female Pin Connects programmer to device.
⑥	Programmer Male Pin Connects programmer to device.

3.2.Specifications

ITEM	Description
Operating Temperature	-20 to 70 °C (-4 to 158 °F)
Storage Temperature	-40 to 85 °C (-40 to 185 °F)
Diagnostic Interface	16 PIN
USB Interface	USB 2.0
Power	DC 5 V - 12 V
Consumption	1 W
Dimensions	<div>Length</div> <div>95 mm(3.74")</div> <div>Width</div> <div>49 mm(1.93")</div> <div>Height</div> <div>28 mm(1.10")</div>
Net Weight	85 g
Gross Weight	223 g

3.3. System Requirements

PC/Laptop Minimum Specification

	Minimum Specification	Recommended Specification
CPU	Pentium 3/1GHz or above	Pentium 4/1.6GHz or above
Memory(RAM)	512M or above	1G or above
HDD	40G or above	60G or above
Display	800 x 600 or above	1024 x 768 or above
OS	Win98/2000/XP/Vista	WinXP
Port	USB	USB

4. Software Overview

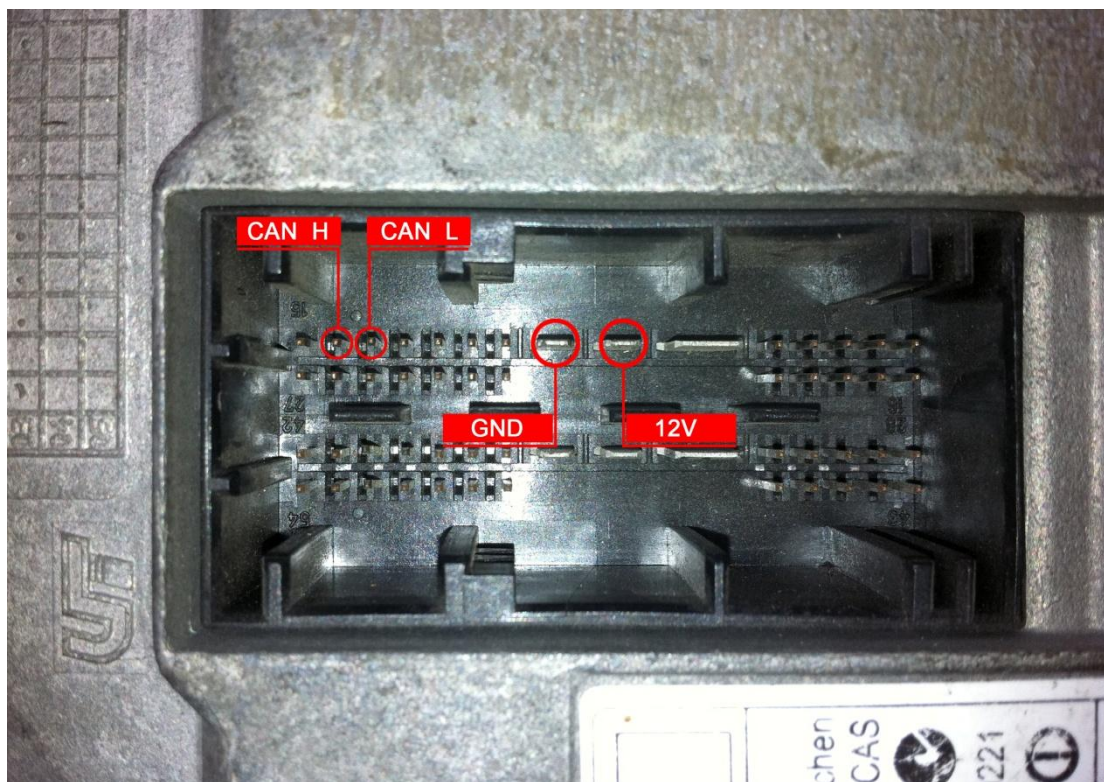
4.1. Overview

BMW Multi Tool includes forth parts, hardware device, dongle, programmer, software. Before running software you must connect dongle and hardware device to computer.

BMW Multi Tool Support Table			○	●	Not Support
					Support
System	Function	OBDII	CAS PLUG	Support	EEPROM Dump
EWS1	Change KM	○	○	○	○
	IMMO	○	○	●	●
EWS2	Change KM	○	○	○	○
	IMMO	○	○	●	●
EWS3	Change KM	○	○	○	●
	IMMO	○	○	●	●
EWS4	Change KM	○	○	○	●
	IMMO	○	○	●	●
CAS1(0K50E) (7 Series)	Change KM	○	○	○	●
	IMMO	○	○	○	●
CAS2(2K79X) (7 Series)	Change KM	○	●	●	●
	IMMO	○	●	●	●
CAS2(2K79X) (White box)	Change KM	○	●	●	●
	IMMO	●	●	●	●
CAS3(0L01Y)	Change KM	○	●	●	●
	IMMO	●	●	●	●
CAS3+(0L15Y) (no encrypt)	Change KM	●	●	●	●
	IMMO	●	●	●	●
CAS3+(0L15Y) (encrypt)	Change KM	●	●	●	●
	IMMO	●	○	○	○
CAS4	Change KM	○	○	○	○
	IMMO	○	○	○	○

1. OBD II: BMW Multi Tool connects to car directly.
2. CAS PLUG: Connect CAN line manually, support 12V. Detail method followed in next page.
3. Support EEPROM dump: get EEPROM dump with programmer.

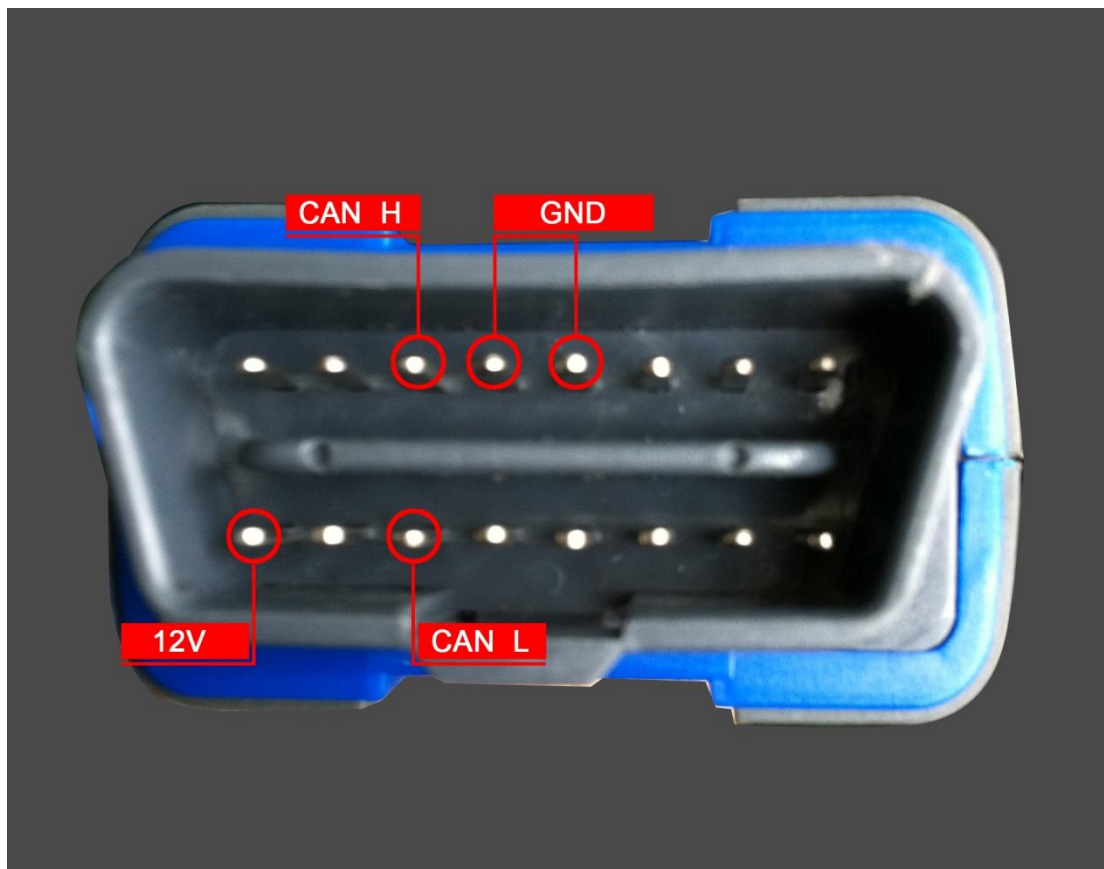
1. 7 Series CAS1/CAS2 pin method:



2. CAS2(While Box)/CAS3/CAS3+ pin method:

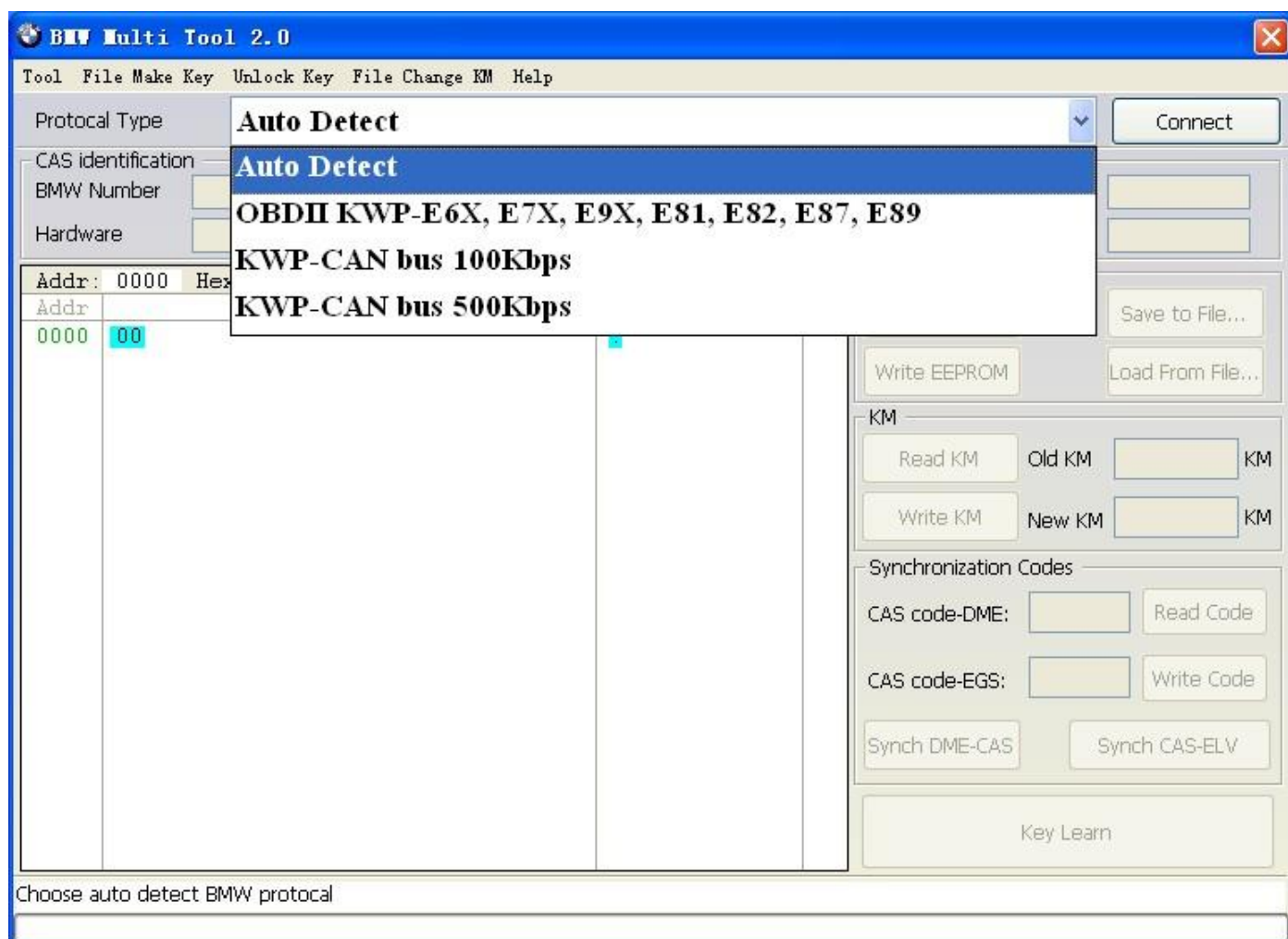


3. Device pin method:



4.2. Function

Main window follows:



i. Menu

Tool: you can choose language here, support “English” and “Chinese Simplified” Restart software to apply your settings.

File Make Key: you can prepare dealer key with EWS and CAS EEPROM dump.

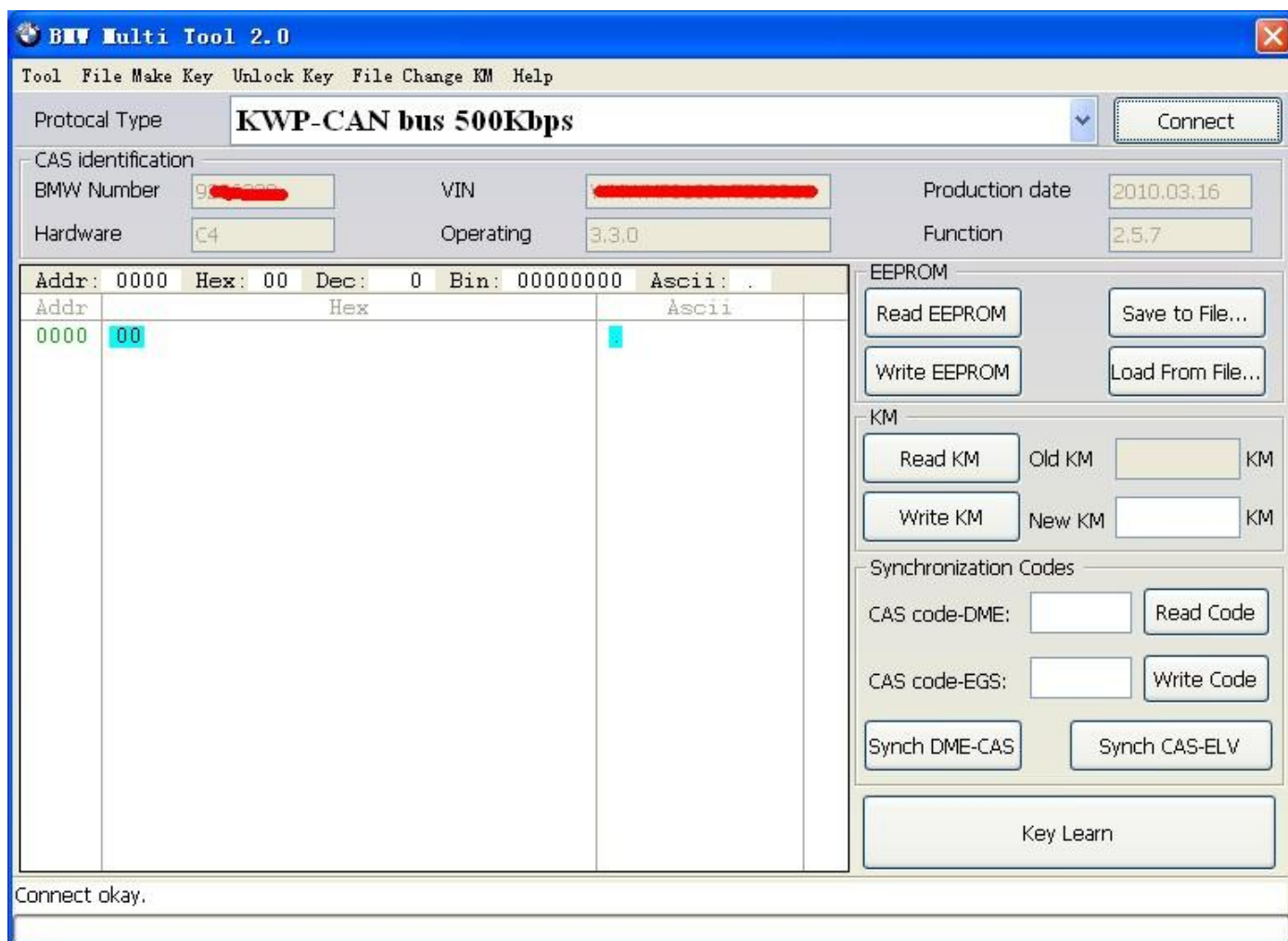
Help: Device update. You can get your device and dongle id version and update it.

Unlock Key: Key make by this software can be unlocked with the original EEPROM dump or key file.

File Change KM: KM stored in CAS EEPROM and instrument dashboard (M35080) can be changed here.

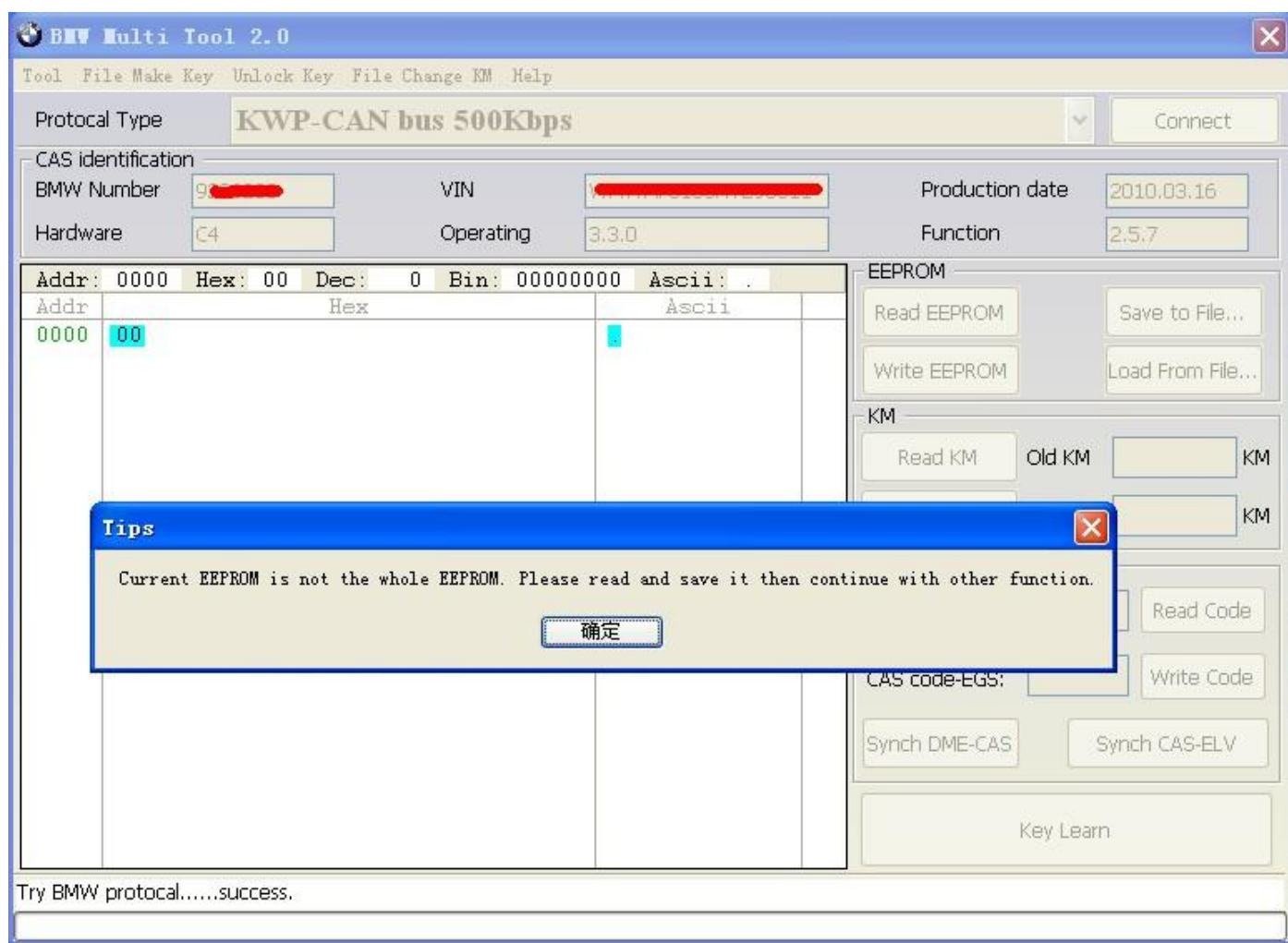
ii. Protocol type:

Now BMT support there type of protocol: KWP-CAN BUS 100Kbps, KWP-CAN BUS 500Kbps, KWP-2000. “Auto Detect ” function can help you to choose the right protocol. After choose protocol okay, then press “Connect”. If connected success. All CAS info will display in CAS Identification. Include CAS number, VIN, production date, etc. see the picture follows:

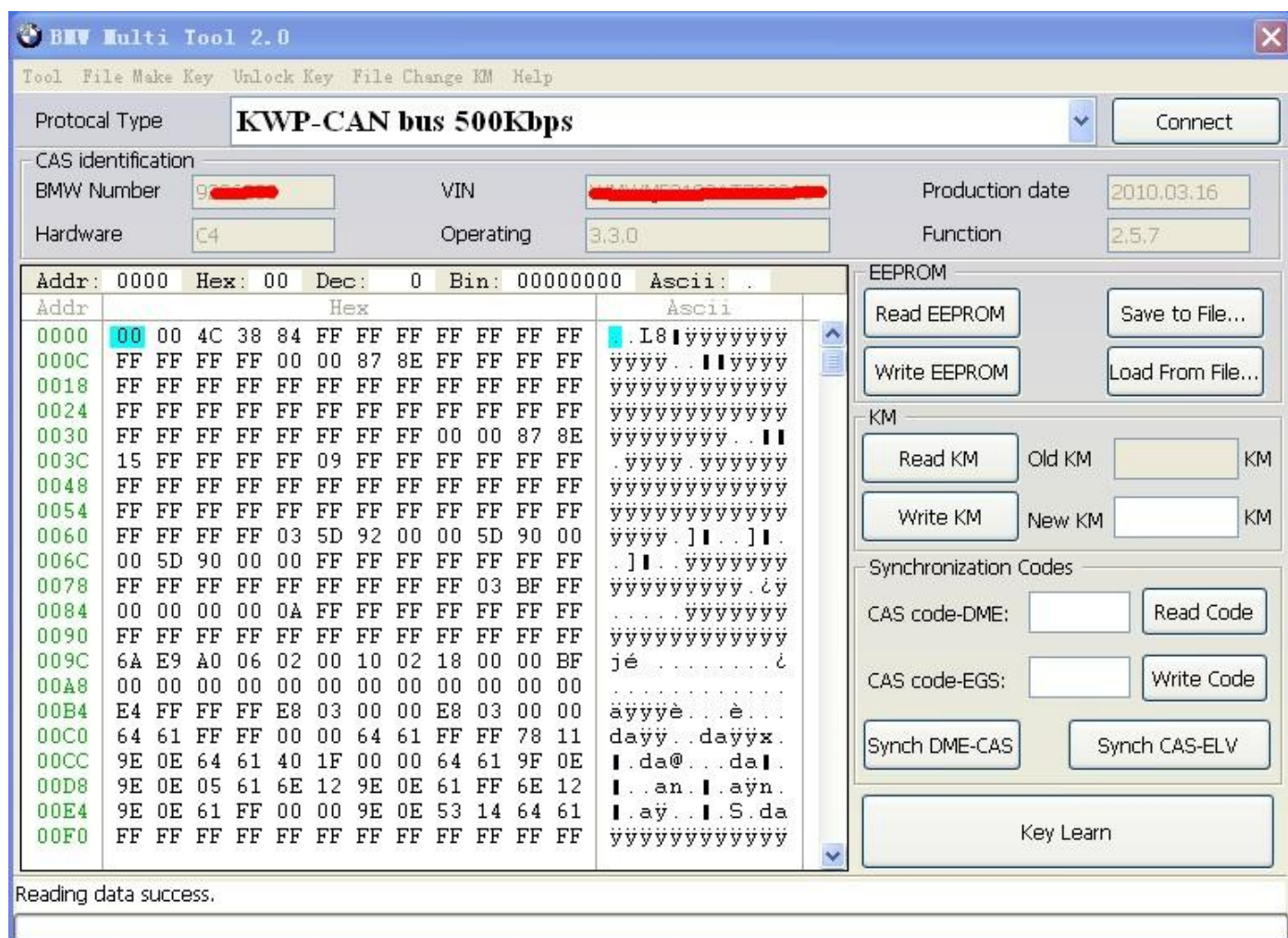


iii. EEPROM Function: Read EEPROM, Write EEPROM, Save File, Load File...

1. You should backup the CAS EEPROM before prepare dealer key. After succeed read EEPROM, please save it as back file. This step is very important.
2. Now can't read the whole EEPROM for cas3 system. But the main section is contained. It should be saved. When you read CAS EEPROM, it will give tips as follow(Press ok to continue):

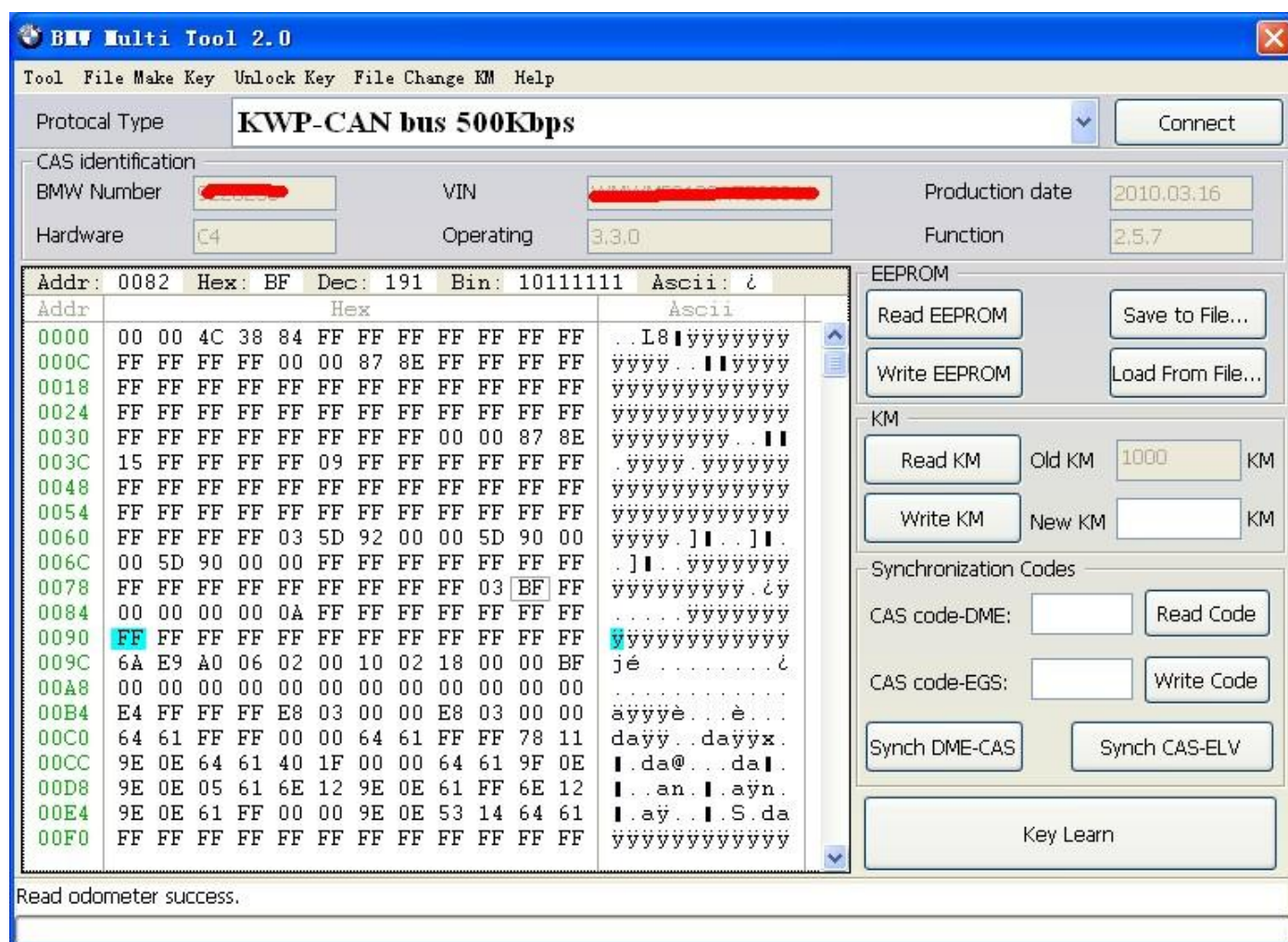


3. After success read it, you will get:

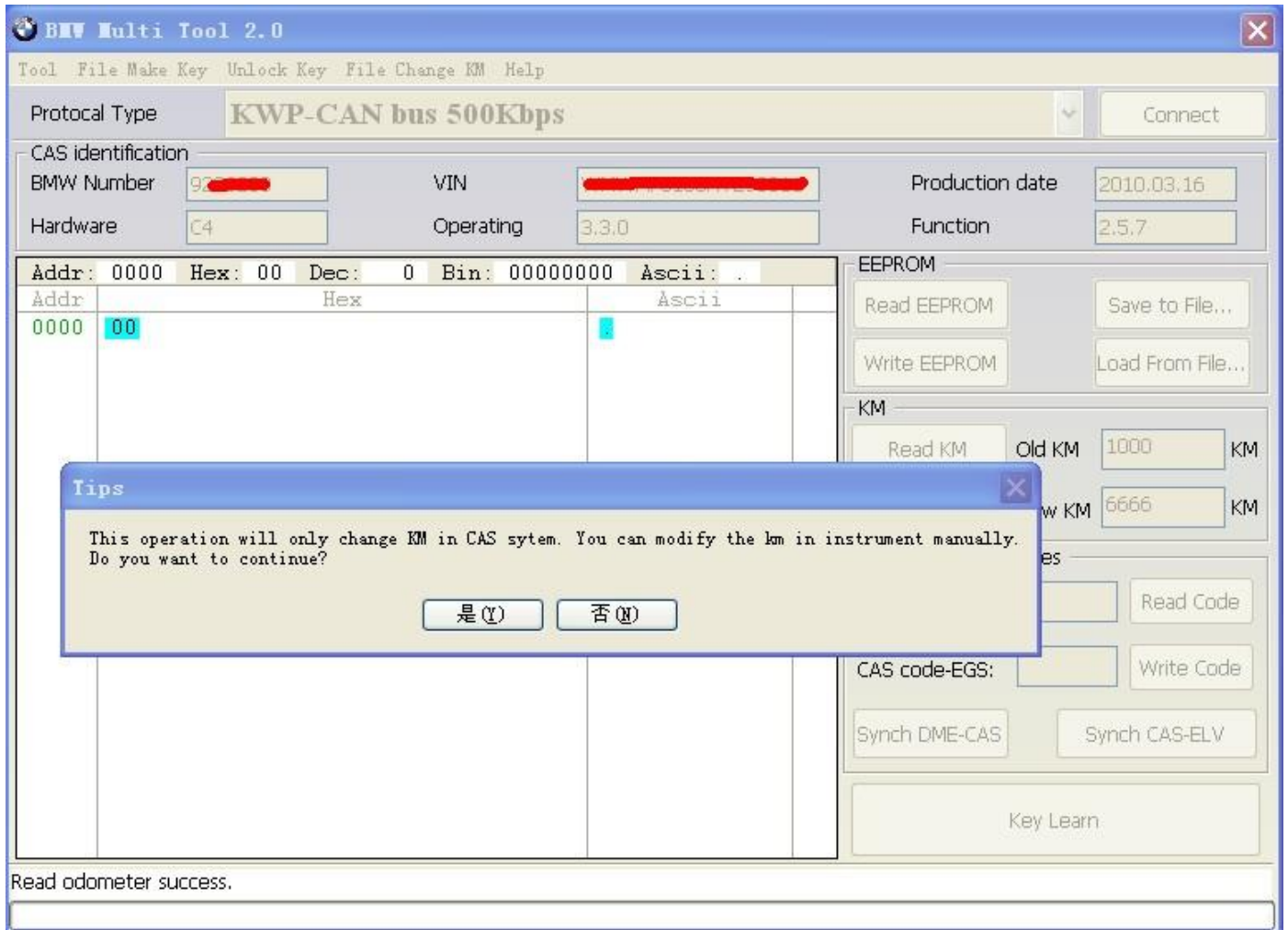


4. Write EEPROM function is only support CAS1, CAS2 system. Doesn't support write to CAS3 system. (Write EEPROM to CAS1/CAS2 system need CAS PLUG).

- iv. **Odometer:** Support read and change KM stored in CAS system. Don't support to change KM in instrument. If you want to change the KM display in instrument. You should change KM in CAS system first. Then modify the KM in instrument manually. Read KM :



When you try to write KM to CAS system, you will get the following tips: Press OK to continue.



BMW Multi Tool 2.0

Tool File Make Key Unlock Key File Change KM Help

Protocol Type: **KWP-CAN bus 500Kbps** Connect

CAS identification

BMW Number: [REDACTED] VIN: [REDACTED] Production date: 2010.03.16

Hardware: C4 Operating: 3.3.0 Function: 2.5.7

Addr	Hex	Dec	Bin	Ascii
0000	00	0	00000000	.

EEPROM

Read EEPROM Save to File...

Write EEPROM Load From File...

KM

Read KM Old KM: 1000 KM

Write KM New KM: 6666 KM

Synchronization Codes

CAS code-DME: Read Code

CAS code-EGS: Write Code

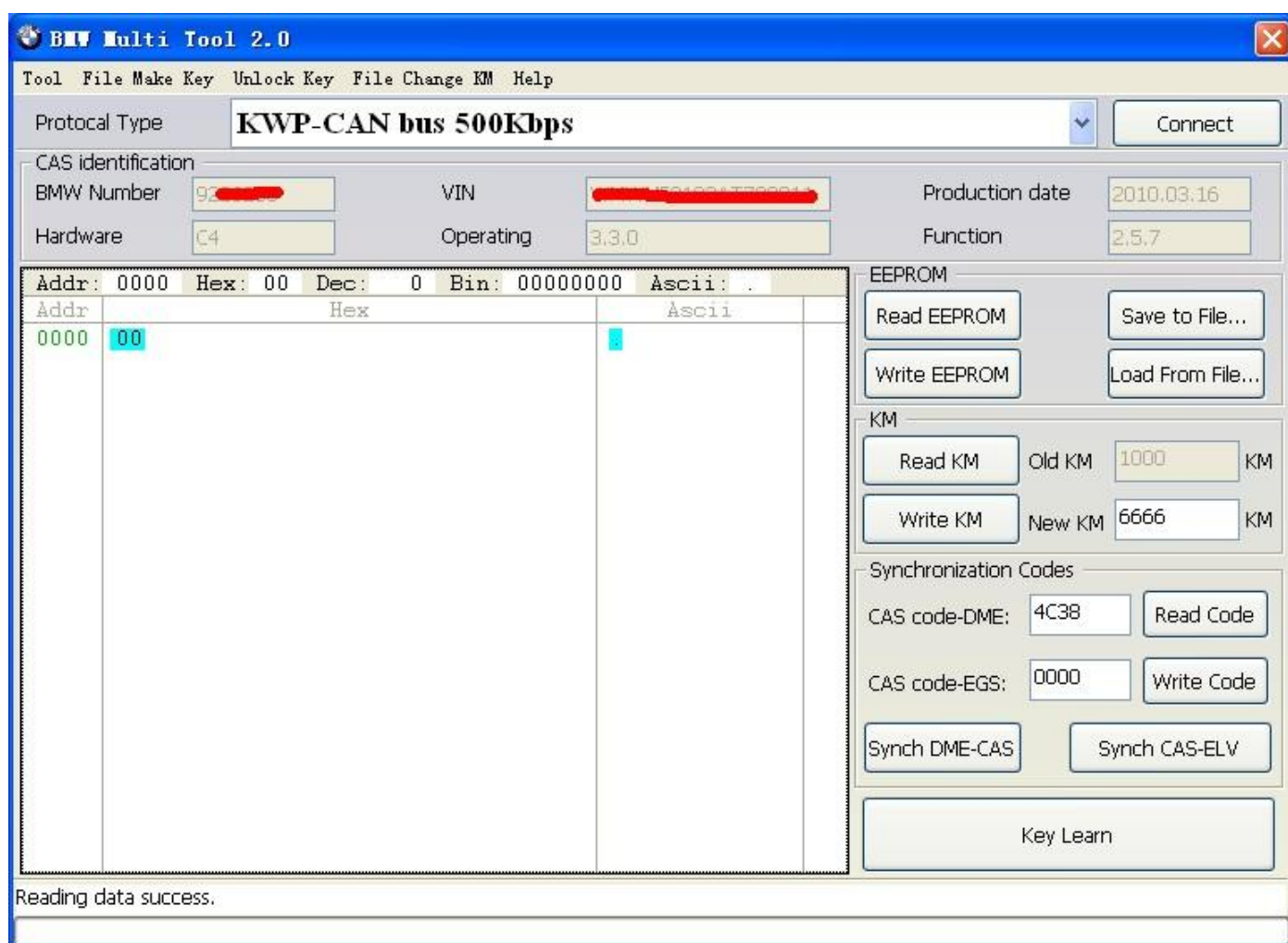
Synch DME-CAS Synch CAS-ELV

Key Learn

Writing data success.

v. Synchronization Codes:

- 1、CAS3 code-DME 、CAS3code-EGS: Read and write DME and EGS code stored in CAS3 system.
- 2、Synchronize DME and CAS— this function will be useful while prepare dealer key or any other operation which cause can't start the engine.
- 3、Synchronize CAS and ELV — this function can help clear wheel errors.
- 4、Once lost all working key, please don't run this function.



vi. Key Learn

Key Learn

General info
 Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position

Number	ID	Low	High	RND/FBD
<input type="radio"/> KeyID1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID9	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="radio"/> KeyID10	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

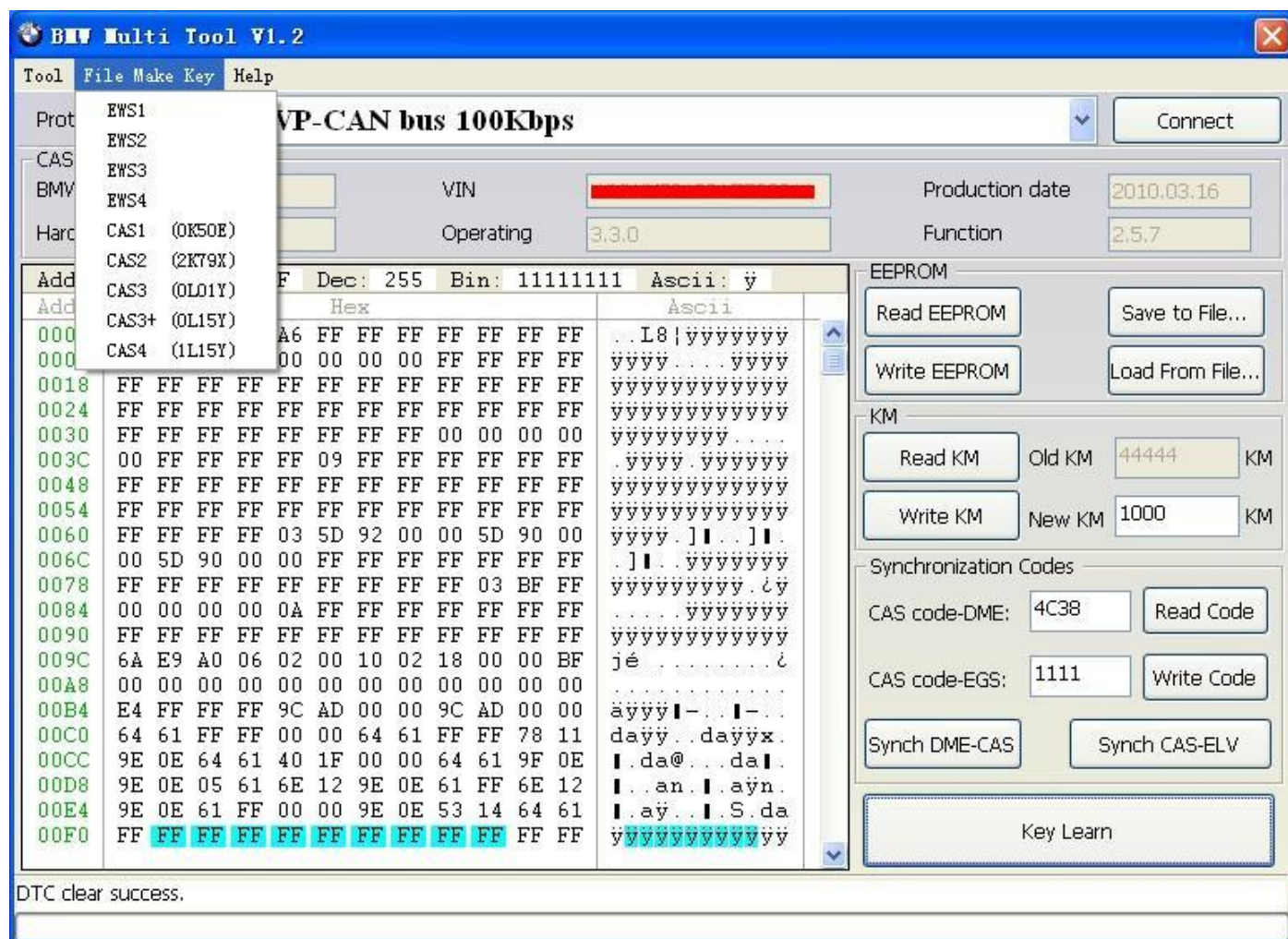
Buttons:

Get Key Info	Save Key Info	Make Dealer Key	Enable Key	Clear DTC
Write Key Info	Load Key Info	Add Key	Disable Key	Clear Shadow

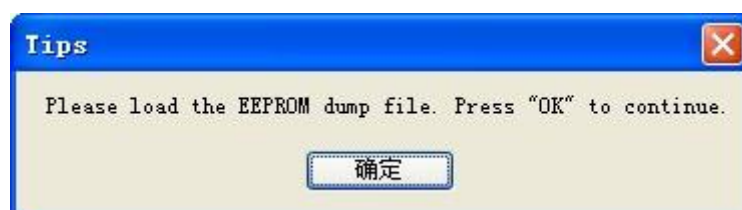
Function introduction:

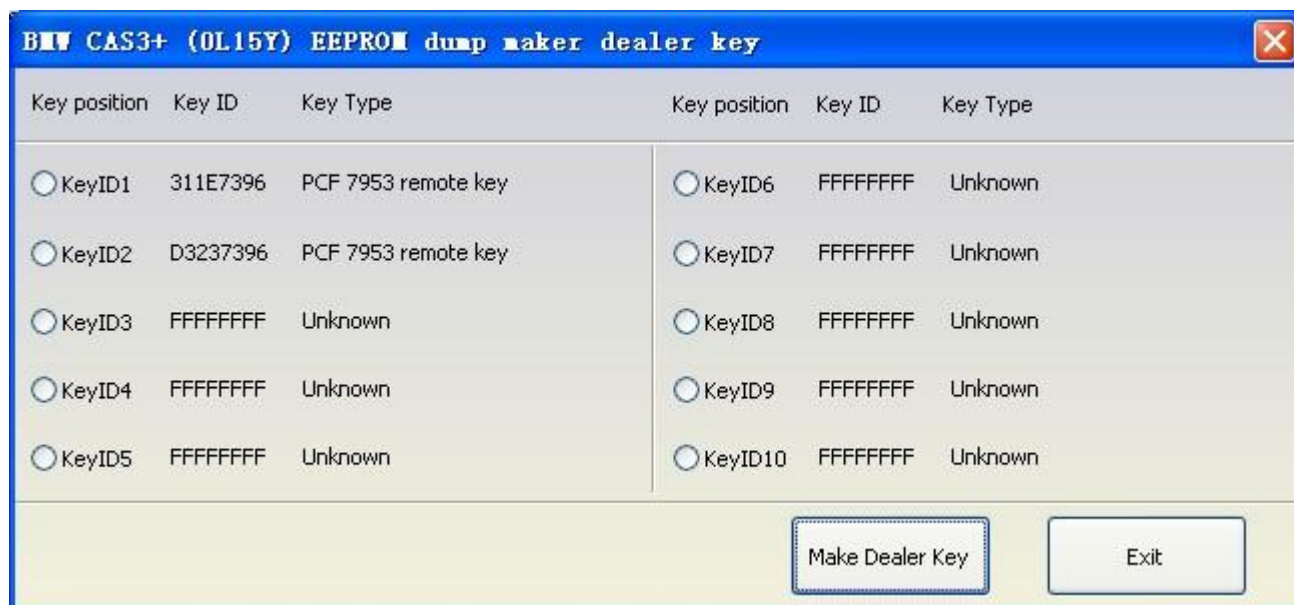
1. **Get Key Info:** With this function you can get the key cutting, remote frequency, and key data.
2. **Save Key Info:** Save the read key info.
3. **Load Key Info:** Load the saved key info. To see the key data and prepare for write key info.
4. **Write Key Info:** Write the loaded key info into CAS system.
5. **Make Dealer Key:** You can prepare dealer key after you get key info successfully. Also you should choose the key position.
6. **Add key:** Add the new dealer key into CAS system. Some CAS system needs this step to start the engine.
7. **Enable Key:** Insert a working key, choose the key position which you want to disable. The key position can't be same with the key in ignition.
8. **Disable Key:** Insert a working key, choose the key position which you want to enable. The key position can't be same with the key in ignition.
9. **Clear DTC:** Before prepare dealer key and after it you can use this function to clear DTC.
10. **Clear Shadow:** Before prepare dealer key and after it you can use this function to clear Shadow.

vii. File Make Key



1. Choose CAS or EWS type. It will tips you:



2. Load the choose EEPROM file you will get the make dealer key window:

The screenshot shows a software window titled "BMW CAS3+ (0L15Y) EEPROM dump maker dealer key". It contains a table with two columns of key information. The first column lists KeyID1 through KeyID5, and the second column lists KeyID6 through KeyID10. Each entry includes a radio button, a Key ID, and a Key Type. At the bottom right, there are two buttons: "Make Dealer Key" and "Exit".

Key position	Key ID	Key Type	Key position	Key ID	Key Type
<input type="radio"/> KeyID1	311E7396	PCF 7953 remote key	<input type="radio"/> KeyID6	FFFFFFFF	Unknown
<input type="radio"/> KeyID2	D3237396	PCF 7953 remote key	<input type="radio"/> KeyID7	FFFFFFFF	Unknown
<input type="radio"/> KeyID3	FFFFFFFF	Unknown	<input type="radio"/> KeyID8	FFFFFFFF	Unknown
<input type="radio"/> KeyID4	FFFFFFFF	Unknown	<input type="radio"/> KeyID9	FFFFFFFF	Unknown
<input type="radio"/> KeyID5	FFFFFFFF	Unknown	<input type="radio"/> KeyID10	FFFFFFFF	Unknown

Make Dealer Key Exit

3. Choose key position and press “Make Dealer Key” button. Flow the given tips to prepare dealer key. After succeed you can save the new EEPROM dump file.

For EWS1, EWS2, EWS3, EWS4, CAS1, CAS2, CAS3 type the prepared dealer key can start the engine directly.

For some CA3+ type you need to write back the new dump file into car.

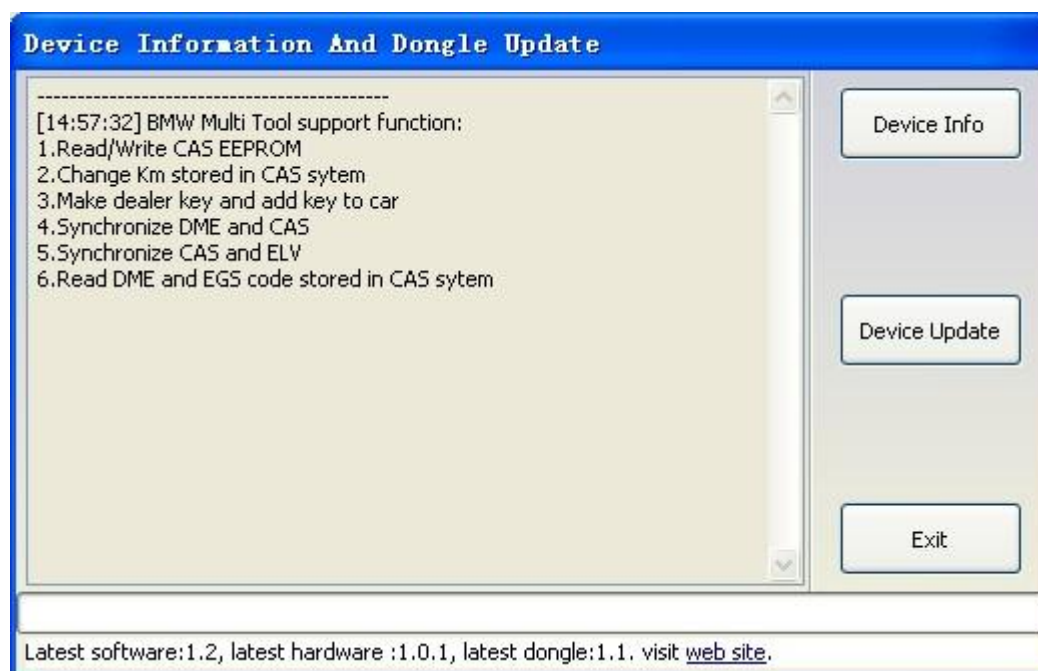


4. CAS3 encrypt data, only OBDII prepare make key is support for CAS3 encrypt data.

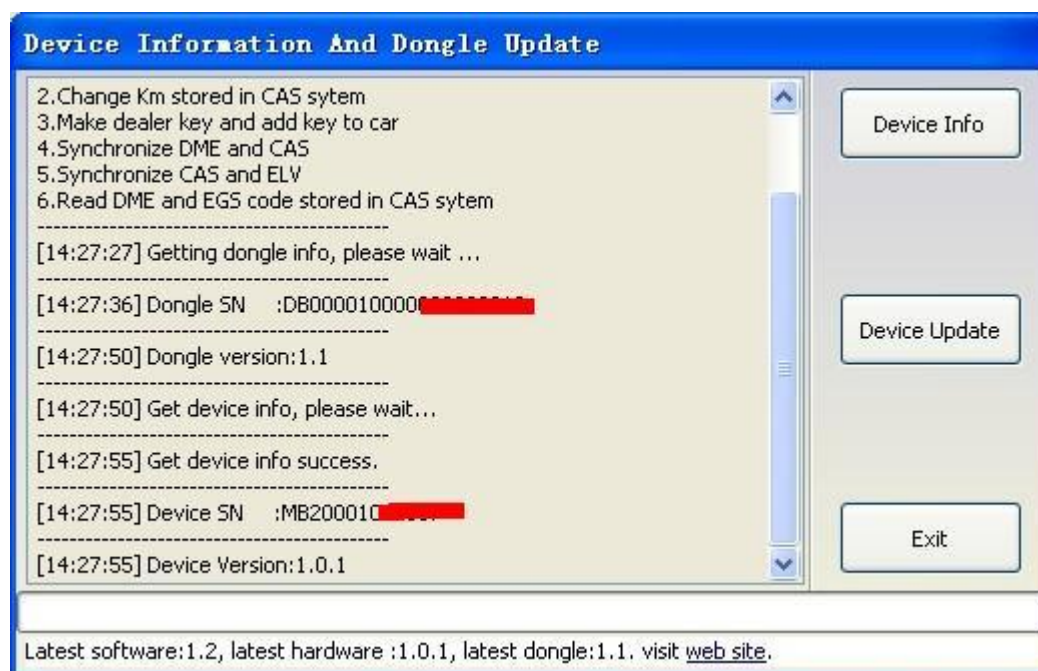


viii. Device Update

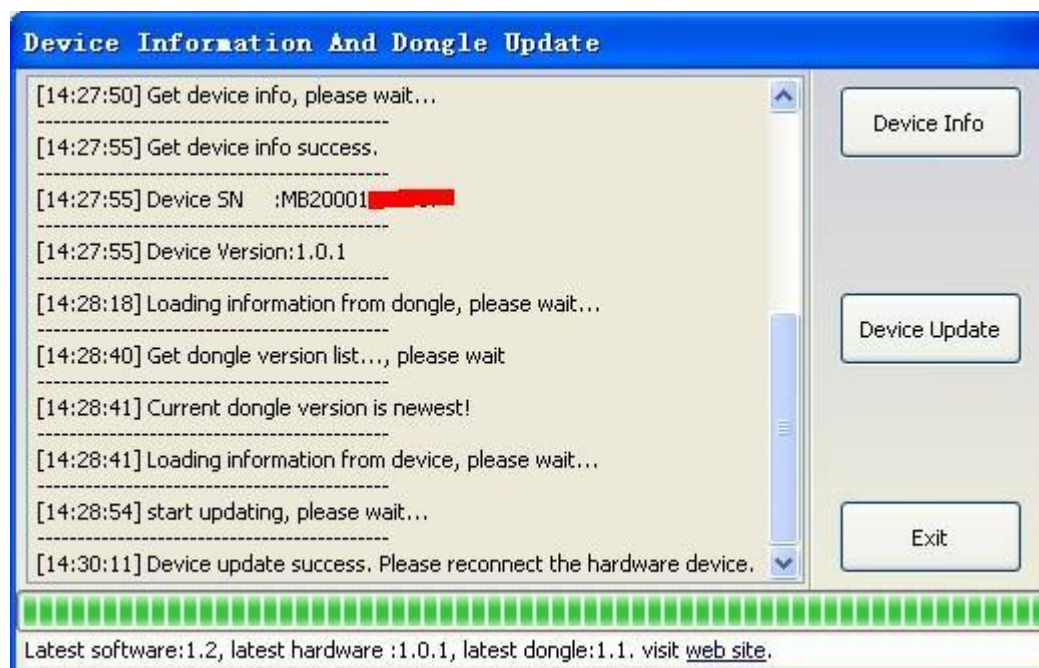
Open this window after connect to internet. You can see the latest software version, firmware version, dongle version. You can go to our website for further information. After succeeded update device firmware, must reconnect the hardware to computer.



1. Device Info: Get dongle and hardware SN and version.



2. Device Update: This function can update the dongle and device.



Process to prepare dealer key:

1. On main window choose "Connect" to auto detect the current car protocol and get the CAS info.
2. On main window choose "Read EEPROM" to read the CAS EEPROM file and save it.
3. On main window choose "Key Learn" button to get key learn window.
4. On Key Learn window choose "Get Key Info" to get the key info stored in CAS system.(picture 2).
5. Choose "Save Key Info" button to save the read key info for backup.
6. Check the connection between programmer and device. Keep connection while make key process.
7. Put new blank key into the center of programmer.
8. Choose the position where you want to suit the key.
9. Press "Make Dealer Key" to prepare dealer key. After succeed you will get (picture 3)
 "Key make okay and locked. Please use it start the car. If can't start engine, use "Add Key" function add the new dealer key to CAS system." Once can start the engine, go to step 13.
10. Put the new dealer key into programmer. Use "Add Key" function to add the key to CAS system. After that you will get (picture 4):"New dealer key success written to CAS system. You can start engine with the new key now. If can't please use the original working key first."
11. Please return to main widow and use function "Synch DME-CAS" to synchronize DME (ECU) with CAS.
12. Use "Synch CAS-ELV" to clear wheel errors.
13. Enter to key learn window use "Clear DTC" and "Clear Shadow" function clear all error sin CAS system.

While prepare dealer key process. Once you get the tips like picture 1, remove the key from ignition switch, if key has keyless, take the key out of car.

Picture 1:

Key Learn

General info
Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position	Remote control				Immobilizer								
	Number	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1													
<input type="radio"/> KeyID2													
<input type="radio"/> KeyID3													
<input type="radio"/> KeyID4													
<input type="radio"/> KeyID5													
<input type="radio"/> KeyID6													
<input type="radio"/> KeyID7													
<input type="radio"/> KeyID8													
<input type="radio"/> KeyID9													
<input type="radio"/> KeyID10													

Tips

The dealer key should be taken away from ignition switch.
If key is keyless, please move it out of car.
Press "OK" to continue.

确定

Get Key Info Save Key Info Make Dealer Key Enable Key Clear DTC
Write Key Info Load Key Info Add Key Disable Key Clear Shadow

Picture 2:

Key Learn

General info
 Key cutting code: 31 CAS remote control frequency: 315Mhz Current key in ignition switch is: No Key

Key position	Remote control				Immobilizer							
	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31	70A5AB97	6F	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66	036F6A97	9D	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3	4CD0	89995983	19D3	08A8F0EF	E5A5B516	A1	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
<input type="radio"/> KeyID4	6F10	E8122696	30CF	24602665	1FB6B516	84	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
<input type="radio"/> KeyID5	7D22	1FC38BE9									14	PCF 7936 transpc
<input type="radio"/> KeyID6	3BEE	4C42D7D1									E4	Unknown
<input type="radio"/> KeyID7	588C	7E74EEEE									71	Unknown
<input type="radio"/> KeyID8	BF56	828D34A1									68	Unknown
<input type="radio"/> KeyID9	8055	6E06DAE2	D8EC	73325755	FFFFFFF	BE	DBA1	C8	C5AEF4	007608	3C	Unknown
<input type="radio"/> KeyID10	86DA	35137491	D9ED	CB618D0B	FFFFFFF	4AD	A99C	C8	941D15	007608	85	Unknown

Tips
 Please use "Save Key Info" to save the original key information.
 确定

Get Key Info Save Key Info Make Dealer Key Enable Key Clear DTC
 Write Key Info Load Key Info Add Key Disable Key Clear Shadow

Picture 3:

Key Learn

General info
 Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position: ☐ KeyID1 ☐ KeyID2 ☐ KeyID3 ☐ KeyID4 ☐ KeyID5 ☒ KeyID6 ☐ KeyID7 ☐ KeyID8 ☐ KeyID9 ☐ KeyID10

Remote control				Immobilizer							
ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
C979	7891304A	6EC9	2E520B31	70A5A897	6F-	3715	C8	D25595	004B00	1E	PCF 7945 remote
5E2A	FD6D94AF	D48C	643E1D66	036F6A97	9D-	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
4CD0	89995983	19D3	08A8F0EF	E5A5B516	A1-	D69B	0E	ADA836	002B00	4C	PCF 7936 transpc
6F10	E8122696	30CF	24602665	1FB68516	84-	F8F1	08	D433AC	002B00	A3	PCF 7936 transpc
7D22	1FC38BE9	F721	B387FD40	E5A5B516	60-	5E90	08	B12E96	002B00	14	PCF 7936 transpc
38FF	4C42D7D1	9D8C	03BC7A77	FFFFFFF	29-	705D	C8	48F534	007608	E4	Unknown
										71	Unknown
										58	Unknown
										3C	Unknown
										35	Unknown

Tips
 Key make okay and locked. Please use it start the car.
 If can not start engine. use "Add Key" function add the dealer key to CAS system.

确定

Get Key Info Save Key Info Make Dealer Key Enable Key Clear DTC
 Write Key Info Load Key Info Add Key Disable Key Clear Shadow

Picture 4:

Key Learn

General info
 Key cutting code: CAS remote control frequency: Current key in ignition switch is:

Key position: Remote control Immobilizer

Number	ID	Low	High	RND/FBD	ID	Low	High	CFG	PSW	Info	CRC	Type
<input type="radio"/> KeyID1	C979	7891304A	6EC9	2E520B31	70A5AB97	6F	3715	C8	D25595	004B00	1E	PCF 7945 remote
<input type="radio"/> KeyID2	5E2A	FD6D94AF	D48C	643E1D66	036F6A97	9D	B6FA	C8	695B7A	004B00	6B	PCF 7945 remote
<input type="radio"/> KeyID3												
<input type="radio"/> KeyID4												
<input type="radio"/> KeyID5												
<input type="radio"/> KeyID6												
<input type="radio"/> KeyID7												
<input type="radio"/> KeyID8	BF56	828D34A1	B352	BF995B43	FFFFFFF	F0	51DE	C8	7DE830	007608	68	Unknown
<input type="radio"/> KeyID9	8055	6E06DAE2	D8EC	73325755	FFFFFFF	BE	DBA1	C8	C5AEF4	007608	3C	Unknown
<input type="radio"/> KeyID10	86DA	35137491	D9ED	CB618D0B	FFFFFFF	4A	A99C	C8	941D15	007608	85	Unknown

Tips
 Make dealer key success written to CAS system.
 You can start engine with the new key now. If cant please use the original working key first.

确定

Get Key Info Save Key Info Make Dealer Key Enable Key Clear DTC
 Write Key Info Load Key Info Add Key Disable Key Clear Shadow

Warning: Make sure connect dongle to compute before run the software.

5. Troubleshooting

5.1. “Device not connected” Error



Information: Hardware not connected to PC with USB port.

Solution: Plug device to USB.

6. Warranty and Service

6.1. Limited One Year Warranty

X-Horse warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one(1) year from the date of the original purchase, subject to the following terms and conditions:

- This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
- X-Horse shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the tool. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. X-Horse reserves the right to make changes at any time without notice.

6.2. Service Procedures

If you have any questions, please post at <http://www.x-horses.com/forum/>